

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Patenttitoimisto Kari Pirhonen  
Oy  
P.O. Box 71  
FIN-20101 TURKU  
Finland

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL PRELIMINARY  
EXAMINING AUTHORITY

(PCT Rule 66)

Date of mailing  
(day/month/year)

12-07-2004

Applicant's or agent's file reference

P1930

REPLY DUE

within  days from  
the above date of mailing

International application No.

PCT/IB2003/004646

International filing date (day/month/year)

20.10.2003

Priority date (day/month/year)

18.10.2002

International Patent Classification (IPC) or both national classification and IPC

B03C 1/28, G01N 33/543

Applicant

Bio-Nobile Oy et al

1.  The written opinion established by the International Searching Authority:  
 is  is not  
 considered to be a written opinion of the International Preliminary Examining Authority.

2. This first (first, etc.) opinion contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the opinion
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3.  
 For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis.  
 For an informal communication with the examiner, see Rule 66.6.  
 For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: 18.02.2005

Name and mailing address of the IPEA/SE  
Patent- och registreringsverket  
Box 5055  
S-102 42 STOCKHOLM  
Facsimile No. 46 8 667 72 88

Authorized officer

Irma Bornhede / JA A  
Telephone No. 46 8 782 25 00

WRITTEN OPINION OF THE  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITYInternational application No.  
PCT/IB2003/004646

## Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

This opinion is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

international search (under Rules 12.3 and 23.1(b))  
 publication of the international application (under Rule 12.4)  
 international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this opinion has been established on the basis of (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."):

the international application as originally filed/furnished

the description:

pages \_\_\_\_\_ as originally filed/furnished

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages \_\_\_\_\_ as amended (together with any statement) under Article 19

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:

pages \_\_\_\_\_ as originally filed/furnished

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (specify): \_\_\_\_\_

any table(s) related to the sequence listing (specify): \_\_\_\_\_

4.  This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (specify): \_\_\_\_\_

any table(s) related to the sequence listing (specify): \_\_\_\_\_

WRITTEN OPINION OF THE  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITYInternational application No.  
PCT/IB2003/004646

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	_____
	Claims	_____
Inventive step (IS)	Claims	<u>1-3, 5-6, 8-9, 12-13</u>
	Claims	_____
Industrial applicability (IA)	Claims	_____
	Claims	_____

## 2. Citations and explanations:

The invention concerns a magnetic transfer method and a micro-particle transfer device for sorting, collecting, transferring or dosing micro-particles in a liquid by using magnetic field. The invention also concerns a rector unit for micro-particles. The particles are collected on the surface of a protective cover by means of at least one magnet placed inside it. The particles are dosed by means of a ferromagnetic body.

The aim of the invention is to provide a device by means of which micro-particles can be collected from a large volume and concentrated into a smaller volume.

Reference is made to the following documents:

D1: US 2 517 325 A  
 D2: US 6 020 211 A  
 D3: WO 87 055 36 A1  
 D4: US 6 468 810 B1.

Document D3 is considered to represent the closest prior art. Document D3 describes a method and apparatus for collecting and dispersing ferromagnetic particles in a fluid medium. The apparatus, a probe, comprises a cylindrical plastic sleeve having a nose-shaped end. The nose has a thinner jacket wall than the body of the sleeve. A permanent magnet is movable in the passageway of the sleeve. To collect the particles, the permanent magnet is moved into the closed nose end. To disperse the particles, the permanent magnet is moved to a position spaced from the nose.

.... / ....

WRITTEN OPINION OF THE  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITYInternational application No.  
PCT/IB2003/004646

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

## Claims 1, 5 and 13

The invention according to claims 1 and 5 differs from the method and the device in D3 in that the magnet and the ferromagnetic body are moved in relation to each other so that the magnet is partially or completely outside the ferromagnetic body, when collecting the particles and the magnet is partially or completely inside the ferromagnetic body, when releasing or dosing the particles.

Due to these features, the ferromagnetic particles are released by changing the magnetic field.

Consequently, the problem is to develop an alternative to release the micro-particles.

A solution to this problem is known from document D1, which describes a long bar magnet inside a soft-iron tube. By moving the magnet inwards in the soft-iron tube, the magnetic field is diminished. By moving the magnet outwards from the soft-iron tube, the magnetic field is intensified.

It is therefore considered to be obvious for a person skilled in the art to use the teachings in D3 together with prior-art as specified in D1 in order to achieve a magnetic transfer method and a micro-particle transfer device for sorting, collecting, transferring or dosing micro-particles in a liquid according to the claimed invention.

Therefore, the method and the device defined in claims 1 and 5 do not involve an inventive step.

The reactor unit comprises a micro-particle unit defined in claim 5 and therefore, the invention defined in claim 13 does not involve an inventive step.

## Claims 2-3, 6, 8-9 and 12

In view of the cited art and general knowledge, the features defined in claims 2-3, 6, 8-9 and 12 are considered to be measures obvious to a person skilled in the art.

Accordingly, the invention defined in claims 2-3, 6, 8-9 and 12 lacks inventive step.